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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,261	11/17/2003	Chungte W. Chen	PD-03W049	4587
23915 7590 03/12/2007 PATENT DOCKET ADMINISTRATION RAYTHEON SYSTEMS COMPANY P.O. BOX 902 (E1/E150) BLDG E1 M S E150 EL SEGUNDO, CA 90245-0902			EXAMINER PHAN, HANH	
			ART UNIT 2613	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/12/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/715,261	Applicant(s) CHEN, CHUNGTE W.	
	Examiner Hanh Phan	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 12/04/2006.
2. The indicated allowability of claims 4-10 and 15-22 is withdrawn in view of the newly discovered reference(s) to Mansell et al (Us Patent No. 6,493,1223) and Popovich et al. (US Patent No. 6,353,489). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberson et al (US Patent No. 6,233,088 cited by applicant) in view of Mansell et al (US Patent No. 6,493,123).

Regarding claim 1, referring to Figures 1, 3 and 4 Roberson et al teaches a method for an interrogator to identify an interrogated object, comprising the steps of:

providing a light transceiver to the interrogator (i.e., col. 3, lines 1-17, col. 7, lines 7-67, col. 8, lines 66-67 and col. 9, lines 1-55);

associating a dynamic optical tag with the interrogated object, wherein the dynamic optical tag receives an output light beam from the light transceiver and

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controllably reflects the output light beam back to the light transceiver as an input light beam, wherein the dynamic optical tag comprises

a controllable light reflector that is controllable between a reflective state and a non-reflective state and having a modulation signal input, and

a controller that provides the modulation signal input to the controllable light reflector;

the interrogator transmitting an interrogation light beam from the light transceiver to the dynamic optical tag as the output light beam;

the dynamic optical tag reflecting a modulated interrogation light beam back to the light transceiver as the input light beam; and

the light transceiver receiving and analyzing the input light beam to determine an identity of the dynamic optical tag and the interrogated object (i.e., col. 3, lines 1-17, col. 7, lines 7-67, col. 8, lines 66-67 and col. 9, lines 1-55).

Roberson et al. differs from claim 1 in that he does not specifically teach the reflected beam is modulated with information comprising tactical or status information. Mansell et al, from the same field of endeavor likewise teaches modulated retroreflector based optical identification system (Fig. 2). Mansell et al. Further teaches the reflected beam is modulated with information comprising status information (i.e., Figs. 1 and 2, col. 5, lines 22-67 and col. 6, lines 1-12). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the reflected beam is modulated with information comprising tactical or status information as taught by Mansell in the system of Roberson et al. One of ordinary skill in

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the art would have been motivated to do this since allowing providing the identification information and status information from the interrogated object to the interrogator.

Regarding claim 2, the combination of Roberson et al and Mansell et al teaches providing the interrogated object with a tag light receiver of the output light beam (i.e., col. 3 of Roberson et al, lines 1-17, col. 8, lines 66-67 and col. 9, lines 1-55, and Fig. 2 of Mansell et al, col. 5, lines 22-67 and col. 6, lines 1-12).

Regarding claim 3, the combination of Roberson et al and Mansell et al teaches providing the controllable light reflector comprising a micro electro-mechanical system corner cube array (i.e., col. 3 of Roberson et al, lines 31-40, col. 6, lines 32-39 and col. 7, lines 7-67).

5. Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberson et al (US Patent No. 6,233,088) in view of Mansell et al (US Patent No. 6,493,123) and further in view of Popovich et al (US Patent No. 6,353,489).

Regarding claims 4 and 10, Roberson et al as modified by Mansell et al teaches all the aspects of the claimed invention except fails to teach positioning a field of regard broadening structure overlying the controllable light reflector. However, Popovich et al (US Patent No. 6,353,489) teaches positioning a field of regard broadening structure overlying the controllable light reflector (i.e., Fig. 2, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the positioning a field of regard broadening structure overlying the controllable light

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reflector as taught by Popovich et al in the system of Roberson et al modified by Mansell et al. One of ordinary skill in the art would have been motivated to do this since allowing the interrogator can obtain the information about the interrogated object over a wide angular field of regard.

Regarding claim 5, the combination of Roberson et al, Mansell et al and Popovich et al teaches positioning a volume hologram overlying the comrollable light reflector (i.e., Fig. 2 of Popovich et al, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2).

Regarding claim 6, the combination of Roberson et al, Mansell et al and Popovich et al teaches positioning at least two volume holograms overlying the controllable light reflector (i.e., Fig. 2 of Popovich et al, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2).

Regarding claim 7, the combination of Roberson et al, Mansell et al and Popovich et al teaches positioning at least two volume holograms overlying the controllable light reflector, wherein the at least two volume holograms are in a side-by-side relation (i.e., Fig. 2 of Popovich et al, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2).

Regarding claims 8 and 9, the combination of Roberson et al, Mansell et al and Popovich et al teaches positioning at least two volume holograms overlying the controllable light reflector wherein the at least two volume holograms are in a superimposed relation (i.e., Figs. 1-8 of Popovich et al, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2).

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6. Claims 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberson et al (US Patent No. 6,233,088) in view of Popovich et al (US Patent No. 6,353,489).

Regarding claim 11, Roberson et al teaches all the aspects of the claimed invention as set forth in the rejection to claim 1 above except fails to teach the controllable light reflector reflects over a field of regard of greater than 90 degrees relative to the controllable light reflector. However, Popovich et al (US Patent No. 6,353,489) teaches the controllable light reflector reflects over a field of regard of greater than 90 degrees relative to the controllable light reflector (i.e., Fig. 2, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the controllable light reflector reflects over a field of regard of greater than 90 degrees relative to the controllable light reflector as taught by Popovich et al in the system of Roberson et al. One of ordinary skill in the art would have been motivated to do this since allowing the interrogator can obtain the information about the interrogated object over a wide angular field of regard.

Regarding claim 12, the combination of Roberson et al and Popovich et al teaches the light transceiver comprises a laser light source that produces the output light beam, a light receiver that receives the input light beam, and an optical system through which the output light beam and the input light beam are directed (i.e., col. 3 of Roberson et al, lines 31-40, col. 6, lines 32-39 and col. 7, lines 7-67).

Regarding claim 13, the combination of Roberson et al and Popovich et al teaches wherein the controllable light reflector comprises a micro electro-mechanical system corner cube array (i.e., col. 3 of Roberson et al, lines 31-40, col. 6, lines 32-39 and col. 7, lines 7-67).

Regarding claim 14, the combination of Roberson et al and Popovich et al teaches the dynamic optical tag further includes a tag light receiver operable to receive the output light beam (i.e., col. 3 of Roberson et al, lines 31-40, col. 6, lines 32-39 and col. 7, lines 7-67).

Regarding claim 15, the combination of Roberson et al and Popovich et al teaches a light reflecting structure, and a field-of-regard broadening surface overlying the light-reflecting structure (i.e., Fig. 2 of Popovich et al, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2).

Regarding claims 16-22, the combination of Roberson et al and Popovich et al teaches the controllable light reflector comprises a light reflecting structure, and a volume hologram overlying the light reflecting structure (i.e., Fig. 2 of Popovich et al, col. 3, lines 10-67, col. 4, lines 1-12, col. 5, lines 46-67 and col. 6, lines 1-2).

Response to Arguments

7. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


HANH PHAN
PRIMARY EXAMINER